BarCharts, Inc.®

WORLD'S #1 QUICK REFERENCE GUIDE

Quick Study® HEALTH

CPR & Lifesaving

STEP-BY-STEP GUIDE FOR HANDLING MEDICAL EMERGENCIES & TRAUMA INJURIES

BASICS

Chains of Survival

- In-Hospital Cardiac Arrest (IHCA)
  - Primary providers: Surveillance and prevention, activation of emergency response system
  - Code team: Cardiopulmonary resuscitation (CPR), defibrillation
  - Postarrest care
- Out of Hospital Cardiac Arrest (OHCA)
  - Lay rescuers: Activation of emergency response system, cardiopulmonary resuscitation (CPR), defibrillation
  - Emergency medical services
  - Postarrest care

CPR & First-Aid Training

- Courses are available through the American Heart Association, the American Red Cross, hospitals, and fire departments.
- Although you can provide CPR and first aid to a person without taking a course, proper skills and knowledge allow you to provide the best care to an injured or sick person.

Good Samaritan Law

- A **Good Samaritan law** is provided by each state to protect individuals who help people in medical emergencies.
- A **Good Samaritan** is someone who renders aid or assistance in an emergency when he/she is not legally obligated to do so.
- Unless there is negligence or malicious intent, a Good Samaritan is protected from being held liable for the injury or death of the injured person.
- Check the specifics of the Good Samaritan law in your state.

Consent

- **Consent** means permission. An adult, if conscious, must give his/her permission to receive medical care.
- If an adult is unconscious, medical consent is implied.
- If the parent or guardian of an infant or child is present, you must ask for consent before providing medical care, otherwise consent is implied.

Emergency Scene Evaluation

- **Is the scene safe?** Making the decision to act is often a difficult choice. Your personal safety and that of your family members should always come first. Look for hazards that could be dangerous (e.g., traffic, electrical wires, flooding, other people).
- **What happened?** Is it a car crash, an explosion, a fire, a child who was hit while riding a bicycle, a person who has suffered a heart attack or stroke, or something else?
- **How many people are injured?** This will help determine the need for additional resources when calling for help.

Calling for Help

- **Call 911**. If your area does not have 911 service, know the appropriate phone numbers for police, fire, and EMS.
- **Call Poison Control**, if needed. In the United States, call 1-800-222-1222.
- Call your family physician or pediatrician and any specialists that your family members see.

CPR

Cardiopulmonary arrest is when a person's heart stops beating and breathing ceases. When assessing a person, you should look for no breathing or abnormal breathing (only slow gasps for breath), no movement, and no response to touch or verbal cues. CPR may be indicated if a person suffers from a heart attack, trauma, drowning, poisoning, shock, or a central nervous system injury. CPR should be started immediately, even if there is a question about downtime or viability. Resuscitation should be continued until medical help arrives or you become too exhausted to perform CPR.

Adult CPR (8 Years or Older)

1. Make sure the scene is safe.
2. Check to see if the person is responsive. Tap the person's shoulder and shout, "Are you OK?"
3. Check for breathing and pulse. Is the person not breathing or breathing abnormally (only slow gasps for breath)? Slow gasps for breath indicate a lack of adequate breathing and a need for CPR.
4. Yell for help, call 911, and get an AED.
5. Place the person faceup on a firm, flat surface.
6. Begin the **C–A–B** steps for CPR (*see* steps 7–9).
7. **C–Compressions:**
   - **A.** Position your hands:
     - Place 1 hand on top of the other on the lower half of the breastbone in the center of the chest (at the middle of the nipple line).
     - Keep your elbows straight.
   - **B.** Provide 30 chest compressions at a rate of 100 to 120 compressions per minute.
     - Compress the chest at least 2 inches (5 cm) but less than 2.4 inches (6 cm).
     - Allow time for the chest to fully recoil between compressions.
8. **A–Airway:** Open the airway.
   - **A.** Use the head tilt–chin lift method.
   - **B.** Use the jaw thrust method if you suspect head or neck injury.
9. **B–Breathing:** Use mouth to mouth, a barrier device, or a face mask.
   - **A.** Give 2 breaths.
   - **B.** Watch the chest rise.
10. Continue cycles of 30 compressions to 2 breaths until the person wakes up, an AED is ready for use, or an EMS arrives.
11. If the person is unresponsive but breathing normally, place the person in the recovery position and monitor closely.

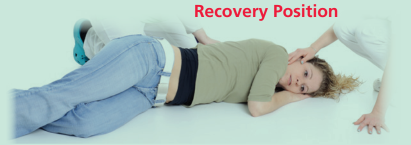
Child CPR (1–8 Years Old)

1. Make sure the scene is safe.
2. Check to see if the child is responsive. Tap the child's shoulder and shout, "Are you OK?"
3. Check for breathing and pulse. Is the child not breathing or breathing abnormally (only slow gasps for breath)? Slow gasps for breath indicate a lack of adequate breathing and a need for CPR.
4. If you are alone with no mobile phone, perform CPR for 5 cycles or about 2 minutes prior to calling for help. If a second rescuer is available, have him/her call 911 and get an AED.
5. Place the child faceup on a firm, flat surface.
6. Begin the **C–A–B** steps for CPR (*see* steps 7–9).
7. **C–Compressions:**
   - **A.** Position your hands:
     - Place 1 or 2 hands on the lower half of the breastbone in the center of the chest (at the middle of the nipple line). For larger children, you may have to use both hands.
     - Keep your elbows straight.
   - **B.** Provide 30 chest compressions at a rate of 100 to 120 compressions per minute.
     - Compress the chest at least 1/3 the depth of the chest or about 2 inches (5 cm).
     - Allow time for the chest to recoil between compressions.
8. **A–Airway:** Open the airway.
   - **A.** Use the head tilt–chin lift method.
   - **B.** Use the jaw thrust method if you suspect head or neck injury.
9. **B–Breathing:** Use mouth to mouth, a barrier device, or a face mask.
   - **A.** Give 2 breaths.
   - **B.** Watch the chest rise.
10. Continue cycles of 30 compressions to 2 breaths until the child wakes up, an AED is ready for use, or an EMS arrives.
11. If the child is unresponsive but breathing normally, place the child in the recovery position and monitor closely.

Infant CPR (Less Than 1 Year Old)

1. Make sure the scene is safe.
2. Check to see if the infant is responsive. Tap the infant's feet and look for movement.
3. Check for breathing and pulse. Is the infant not breathing or breathing abnormally (only slow gasps for breath)? Slow gasps for breath indicate a lack of adequate breathing and a need for CPR.
4. If you are alone with no mobile phone, perform CPR for 5 cycles or about 2 minutes prior to calling for help. If a second rescuer is available, have him/her call 911 and get an AED.
5. Place the infant faceup on a firm, flat surface.
6. Begin the **C–A–B** steps for CPR (*see* steps 7–9).
7. **C–Compressions:**
   - **A.** Position your hands:
     - Place 2 fingers of 1 hand on the lower half of the breastbone in the center of the chest just below the nipple line.
     - Keep your elbows straight.
   - **B.** Provide 30 chest compressions at a rate of 100 to 120 compressions per minute.
     - Compress the chest at least 1/3 the depth of the chest or about 1.5 inches (4 cm).
     - Allow time for the chest to recoil between compressions.
8. **A–Airway:** Open the airway.
   - **A.** Use the head tilt–chin lift method.
   - **B.** Use the jaw thrust method if you suspect head or neck injury.
9. **B–Breathing:** Use mouth to mouth, a barrier device, or a face mask.
   - **A.** Give 2 breaths.
   - **B.** Watch the chest rise.
10. Continue cycles of 30 compressions to 2 breaths until the infant wakes up, an AED is ready for use, or an EMS arrives.
11. If the infant is unresponsive but breathing normally, place the infant in the recovery position and monitor closely.

The **recovery position** allows the airway to stay open. It also allows gravity to help keep the airway clear of vomit, mucous, saliva, etc.



Recovery Position

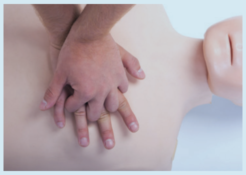
TIP It may be reasonable for communities to implement public-access defibrillation (PAD) programs and to incorporate social media technologies that summon nearby rescuers willing to perform CPR.

C–A–B SEQUENCE FOR CPR

C–Compressions

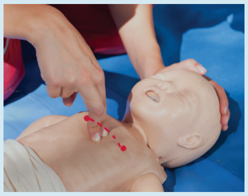
Push on the person's chest to compress the heart. Each compression will pump blood through the body to keep vital organs, such as the brain and heart, alive.

Adult or Child



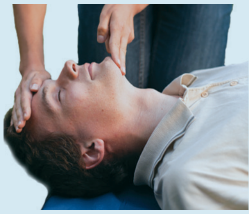
- Place the person faceup on a firm, flat surface.
- Position the heel of 1 or 2 hands (for a child) or 2 hands (for an adult) on the lower half of the breastbone (at the middle of the nipple line).
- Lock your elbows, and push straight down.
- Push at a rate of 100 to 120 compressions per minute.
- After each compression, allow the chest to return to its normal position.

Infant



- Place the infant faceup on a firm, flat surface.
- Position 2 fingers of 1 hand on the breastbone, just below the nipple line.
- Push at a rate of 100 to 120 compressions per minute.
- After each compression, allow the chest to return to its normal position.

A–Airway

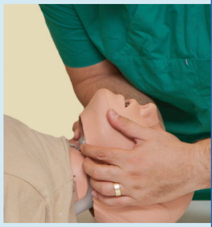


Open the airway by using the head tilt–chin lift or the jaw thrust method. Use the jaw thrust method if you suspect head or neck injury. If the jaw thrust does not open the airway, use the head tilt–chin lift method.

Head Tilt–Chin Lift

- Place 1 hand on the person's forehead and your other hand under the boney part of the chin.
- Tilt the head back with 1 hand while lifting the chin with your other hand. This causes the airway structures to open to allow air to pass through.
- Do not hyperextend the neck of an infant, as this can cause the airway to close.

Jaw Thrust



- Place your hands on each side of the person's jaw.
- With your fingers, grab under the angle of the jaw and lift both hands. This will displace the jaw forward.
- Use your thumbs to push the person's lower lip open if it closes.

B–Breathing

After opening the airway, give 2 breaths. Each breath should be strong enough for you to see the person's chest rise. Seeing the chest rise confirms the airway is open and the person is getting enough air from each of your breaths.

Mouth to Mouth (Adult or Child)

- With the airway open, pinch the person's nose closed with your fingers.
- Create an airtight seal by covering the person's mouth with your mouth.
- Give 2 breaths with enough force to see the chest rise.
- Take your mouth away between each breath to allow air to escape from the person's mouth.

Mouth to Mouth & Nose (Infant)

- With the airway open, create an airtight seal by covering the infant's mouth and nose with your mouth.
- Give 2 breaths with enough force to see the chest rise. Be careful not to use too much force in an infant. You do not want to overexpand the lungs.
- Take your mouth away between each breath to allow air to escape from the infant's mouth and nose.

Barrier Device (Adult, Child, or Infant)

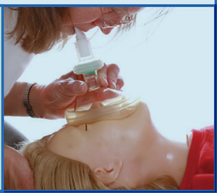
- Place the barrier device over the person's nose and mouth, and open the airway.
- Pinch the person's nose closed with your fingers.
- Give 2 breaths through the one-way valve with enough force to see the chest rise.
- Take your mouth away between each breath to allow air to escape from the person's mouth.

Face Mask (Adult, Child, or Infant)

- Put the face mask over the person's nose and mouth.
- With the airway open, create an airtight seal by pressing the mask with your hands against the person's face.
- Give 2 breaths through the one-way valve with enough force to see the chest rise.
- Take your mouth away between each breath to allow air to escape from the person's mouth.

FACE MASK PLACEMENT

Use two hands to correctly place the mask on the person's face.



CPR: Putting It All Together

Procedure	Adult, 1 & 2 rescuers	Child, 1 rescuer	Child, 2 rescuers	Infant, 1 rescuer	Infant, 2 rescuers
Sequence	Compressions–Airway–Breathing (C–A–B)				
Compression rate	100 to 120/minute				
Compression depth	2 inches (5 cm)	1/3 depth of chest (2 inches [5 cm])		1/3 depth of chest (1.5 inches [4 cm])	
Compression-to-ventilation ratio	30:2	30:2	15:2*	30:2	15:2*

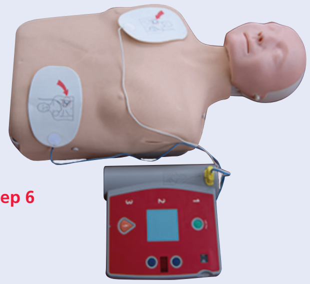
* In both child and infant CPR, if another rescuer arrives to assist, switch to 15 compressions and 2 breaths. One rescuer will perform 15 compressions while the other gives 2 breaths. After 5 cycles or about 2 minutes of CPR, rescuers should switch roles and continue CPR beginning with chest compressions.

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

An **AED** is a medical device that checks a person's heart rhythm in sudden cardiac arrest in which the person is not breathing or moving. The AED delivers a shock (defibrillation) if an abnormal rhythm is detected. If a normal heart rhythm or no heart rhythm is detected, the AED will not deliver a shock but will continue to monitor the person's heart until a shock may be needed. AEDs are accurate and easy to use. CPR combined with immediate use of an AED gives you the best chance of saving a life.

What to Do

1. Make sure the scene is safe.
2. Position the person away from water and metal.
3. Expose the person's chest, and wipe it dry if necessary.
4. Press the power button to turn on the AED.
5. Follow the audiovisual prompts.
6. Attach the AED pads by placing the sticky side of the pads on the person's bare chest.
   - A. Place 1 pad on the right upper front of the person's chest and 1 pad on the lower left side of the person's chest. Make sure the pads are not touching each other. Use pediatric pads for children under the age of 8 and for infants. On an infant or small child, you can place 1 pad on the front of the chest and the other pad on the back of the chest. **NOTE:** If pediatric pads are not available, use adult pads. But never use pediatric pads on an adult (the voltage is not strong enough).
   - B. Attach the AED cables to the AED box.
7. The AED will analyze the heart rhythm once the cables are attached. Make sure everyone is clear of the person. Touching the person can interfere with the interpretation of the heart rhythm.
8. If the AED indicates a shock is advised, make sure everyone is clear of the person before administering the shock.
   - A. Say, "I'm clear, you're clear, everyone is clear."
   - B. Push the button to administer the shock. Some AEDs will administer the shock automatically.
   - C. The shock will produce muscle contractions on the person's chest (this is normal).
9. Whether a shock is advised or no shock is needed, immediately begin CPR, beginning with chest compressions.
10. After 5 cycles or about 2 minutes of CPR, the AED will prompt you again. Follow the audiovisual directions given by the AED.
    - A. Continue CPR, and administer shocks as advised by the AED until professional help arrives or the person is resuscitated.
    - B. If the person is unresponsive but breathing normally, place the person in the recovery position and monitor closely.



Step 6

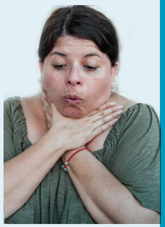
CHOKING

Adult or Child (1 Year or Older)

What to Look For

- The universal sign for choking (i.e., grabbing the throat)
- Coughing but no sound
- The inability to speak

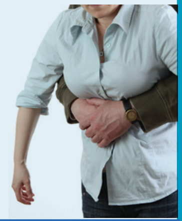
Universal Choking Sign



What to Do

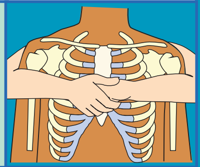
1. Ask the person, "Are you choking?" If so, ask if you can help.
2. Stand behind the person, and wrap your arms around the person so that your hands are in the front.
3. Locate the belly button.
4. Make a fist, and place the thumb side of your fist just above the belly button but below the breastbone. Cover your fist with the palm of your other hand. Using both hands, provide **quick, upward thrusts** into the person's abdomen. Deliver thrusts until the object is expelled or the person becomes unresponsive.

Abdominal Thrusts



OBESE OR PREGNANT PEOPLE

If the person is obese or pregnant, place your hands over the center of the person's chest on the lower half of the breastbone and pull your hands straight back for **chest thrusts**.



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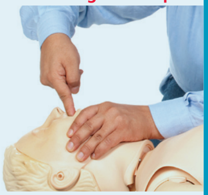
5. If the person becomes unresponsive:
   - **A.** Gently lower the person to the ground.
   - **B.** Begin the steps for CPR.
   - **C.** After each set of compressions, open the airway and check for a foreign object inside the person's mouth.
     - Open the mouth, and look inside.
     - If an object is found, remove it with a finger sweep.
     - **Never** blindly sweep your finger into the person's mouth.
   - **D.** Continue CPR until the person breathes or talks or EMS arrives.



Finger Sweep

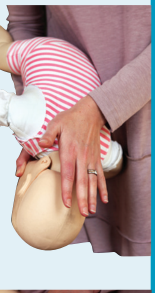
Infant (Less Than 1 Year Old)

What to Look For

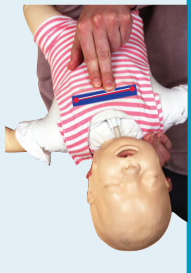
- No coughing
- No crying or sounds
- No breathing

What to Do

1. Place the infant in a facedown position supporting the head and jaw with your hand.
2. Position the infant on your thigh for support.
3. Give 5 back slaps between the shoulder blades with the heel of your other hand.
4. Keep the infant's head slightly lower than the chest to help expel the object.
5. If no object is expelled, support the infant's head and roll the infant over, keeping the head lower than the body.
6. Place 2 fingers on the breastbone just below the nipple line, and give 5 chest thrusts.
7. Continue cycles of 5 back slaps and 5 chest thrusts until the object is expelled or the infant becomes unresponsive.
8. If the infant becomes unresponsive:
   - **A.** Begin the steps for CPR.
   - **B.** After each set of compressions, open the airway and check for a foreign object inside the infant's mouth.
     - Open the mouth, and look inside.
     - If an object is found, remove it with a finger sweep.
     - Never blindly sweep your finger into the infant's mouth.
   - **C.** Continue CPR until the infant breathes or talks or EMS arrives.



Back Slaps



Chest Thrusts

Finger Sweep

HEALTH HISTORY FORMS

Prepare health history forms for each member of your family or household. In addition to name and date of birth, these forms should include the following information:

- **Medical history:** Any medical problem that requires seeing a doctor regularly or has required hospitalization; include names and phone numbers for all medical providers the person sees.
- **Surgical history:** Any surgical procedures performed; include all, not just recent ones.
- **Current medications:** Include vitamins and over-the-counter medications, as well as dose instructions.
- **Allergies:** Include medication, food, and environmental allergies, such as specific insects and plants.
- For minors (children under the age of 18) or adults who are incapable of consenting to their own medical care:
  - Include the name and telephone number of the parent or guardian.
  - If the parent or guardian is unavailable, have a written statement giving the caregiver permission to seek medical care for the child or adult.

TIP Keep copies of your health history forms in your first-aid kit.

STANDARD PRECAUTIONS

When providing emergency care, it is important to remember that infectious diseases can be transmitted through blood and body fluids. Exposure to blood may be through cuts and wounds. Body fluids include drainage from skin lesions, urine, feces, vomitus, nasal discharge, and saliva. Standard precautions involve the use of personal protective equipment to reduce the first-aid provider's risk of exposure to these pathogens.

Hand Washing

- Wash your hands with soap and water before and after administering care.
- Rub and scrub your wrists, the backs of your hands, between your fingers, and under your nails for at least 20 seconds.
- Rinse well with running water, and dry with paper towels.
- If soap and water are not available, use an alcohol-based, waterless hand sanitizer.

Gloves

- Wear waterproof, disposable gloves.
- When removing gloves after use, peel them over the back of your hand while turning them inside out to keep the soiled side in.
- Hands should be washed after glove removal.

Clean Up of Waste

- Clean up spills of blood and body fluids immediately.
- Wear gloves.
- Mop up spills with absorbent paper or cloth towels.
- Wash the area well using a 1:10 disinfectant solution (mix 1 part household bleach in 9 parts water).

Disposal of Waste

- Dispose of gloves, soiled towels, bandages, and other waste in plastic bags. The bags should be sealed and thrown into the garbage out of reach of children or animals.
- Body fluids (e.g., urine, vomitus, feces) should be disposed of in the toilet. If body fluids are spilled, they can be wiped up with paper or cloth towels and discarded in plastic bags.

MEDICAL EMERGENCIES

Shock

Shock occurs when there is a disturbance in circulation, resulting in a lack of oxygen being delivered to the tissues in the body. Causes may include heart attack, breathing problems, severe bleeding, or dehydration. Signs and symptoms can include dizziness, weakness, fainting, pale or clammy skin, rapid or weak pulse, loss of consciousness, rapid or irregular breathing, and nausea and vomiting.

- Call 911.
- If the cause is known, treat appropriately.
- Have the person lie down on his/her back. Elevate the legs to encourage circulation to the brain.
- Reassure the person that you have called for help.
- Keep the person calm.
- Use a blanket to keep the person warm.
- If vomiting occurs, lay the person on his/her side in the recovery position to prevent choking and aspiration.

Chest Pain

Chest discomfort can be described as sharp, dull, burning, aching, stabbing, squeezing, tightness, or crushing. Such discomfort can signify a heart attack, but there are many other possible causes, such as respiratory disorders (e.g., asthma, pneumonia, pleurisy, or pulmonary embolism) and gastrointestinal disorders (e.g., heartburn, gallbladder disease, or ulcer). It is best to be proactive and seek medical attention immediately if someone is experiencing chest pain.

- Call 911.
- Keep the person calm.
- If possible, gather a brief health history and list of medications from the person. This is an opportunity to obtain information that is valuable to emergency responders. If the situation worsens, the person may not be able to provide the information to the responders.
- If the person has been prescribed nitroglycerine for chest pain, you may assist the person in taking the medication under the tongue.
- If signs of a myocardial infarction are present, you may give person 1 adult or 2 low-dose Aspirins.
- Continue keeping the person calm until medical personnel arrive.

Heart Attack

A heart attack results from a lack of oxygen to the heart. This can be caused by a blocked or restricted artery in the heart. Common signs and symptoms include chest discomfort, such as sharp, dull, burning, aching, stabbing, squeezing, tightness, or crushing pain. Pain may radiate to the jaw, neck, back, or arm. Symptoms can vary in women and people who have diabetes; symptoms in these cases may be fatigue, nausea, and lightheadedness.

- Call 911.
- If the person is not allergic to aspirin, give 1 adult or 2 low-dose Aspirins.
- Keep the person calm until medical personnel arrive.
- If the person loses consciousness and stops breathing, begin CPR.

Stroke

A stroke occurs when the blood flow to the brain is interrupted. Signs and symptoms include weakness, numbness, paralysis, balance issues, dizziness, sudden headache, and slurred speech.

- Call 911.
- Remember **FAST** to check for signs and symptoms of stroke:
  - **Face:** Ask the person to smile, and note any facial droop or lack of movement.
  - **Arms:** Ask the person to close his/her eyes and hold his/her arms out in front. Note any weakness or drifting of the arms.
  - **Speech:** Ask the person to say a full sentence, and note any slurring of speech.
  - **Time:** Call 911 immediately. Note the time of onset of the symptoms if possible.
- Monitor the person's breathing and level of consciousness.
- If the person is alert, allow him/her to sit or lie down in the most comfortable position, preferably with the head elevated. Reassure the person that help is on the way, and stay with the person until help arrives.
- If the person is unconscious, lay him/her on either side in the recovery position to protect the airway.
- If breathing stops, administer CPR.
- If possible, gather a brief health history and list of medications from the person. Emergency responders will need that information. Together with the time of onset, this information will determine eligibility for certain medication that can help treat a stroke.

Breathing Difficulty

Breathing difficulty can result from injury or medical illness, such as asthma, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), or emphysema. Signs and symptoms include abnormally fast or slow breathing, abnormally deep or shallow breathing, noisy breathing, and the inability to speak in full sentences. A persistent cough may also be present.

- Call 911.
- Reassure the person that you have called for help.
- If possible, gather a brief health history and list of medications from the person. This is an opportunity to obtain information that is valuable to emergency responders. If the situation worsens, the person may not be able to provide the information to the responders.
- If the person has a prescribed inhaler or nebulizer device, assist him/her in using the device to administer the medication. Note the time that it was administered.
- Keep the person in a comfortable position. Most often, this will be sitting upright.
- Keep the person warm. Cold air may worsen respiratory symptoms.
- If breathing stops, administer CPR.

Allergic Reactions

Allergic reactions occur when the body tries to protect itself from an invader called an **antigen**, a foreign substance that triggers the body's immune system. The immune system generally protects the body against toxins and bacteria. Sometimes it will overreact to a harmless substance (**allergen**) and an allergic reaction takes place. The allergic reaction can be minor or severe.

Minor Allergic Reactions

Minor or local allergic reactions are generally from direct skin contact with poisonous plants (poison ivy, poison sumac), bee and wasp stings, fire ant bites, pollen, dust, etc. Signs and symptoms involve redness, hives, swelling, and itching of the skin. Problems with the person's airway are generally not observed.

- Treat conservatively with the application of a cool cloth or ice to reduce the swelling.
- Oral antihistamines can help reduce symptoms.
- Check with your health care provider for further instructions or if symptoms do not resolve within 1–2 days.

Severe Allergic Reactions

A severe allergic reaction can often result in shock. Signs and symptoms include swelling of the airway, trouble breathing, nausea, vomiting, and diarrhea. This is a true emergency.

- Call 911.
- Determine if the person has been prescribed an epinephrine injection (e.g., an EpiPen) from his/her doctor for such events. If so, assist in administering the injection. Note the time it was administered so that you can share the information with emergency responders.
- Monitor the person closely, especially the person's breathing.
- Keep the person calm.
- Watch for the return of symptoms. The effects of an epinephrine injection can be short-lived. Another dose may be required.

Diabetic Emergencies

Diabetic emergencies can result from blood sugar that is too low or too high. It is often impossible to distinguish between the two states without blood testing, although signs and symptoms of low blood sugar tend to come on more quickly than high blood sugar. Because of this uncertainty, it is always better to administer glucose tablets (or other forms of sugar). Signs and symptoms include poor coordination, irritability, confusion, excessive sweating, nausea, vomiting, and unresponsiveness.

- If the person is responsive and able to swallow without choking, administer glucose tablets. If tablets are not available, administer other forms of sugar, such as juice or a sugared soft drink. If there is no improvement within 5–10 minutes, call 911.
- If the person is unable to swallow, do not administer anything by mouth. Call 911 immediately.

Seizure

A seizure is a brain disorder caused by abnormal electrical activity in the brain. Seizures can be caused by certain diseases, stroke, infection, traumatic brain injury, tumors, medications, and unknown factors. Signs and symptoms can be as simple as a staring spell or as dramatic as a sudden loss of consciousness, stiffening of the body, jerking movements, and loss of bowel or bladder control. Symptoms will vary from person to person.

- Call 911.
- Do not attempt to restrain the person.
- Protect the person from injury by clearing the area.
- Loosen clothing that could restrict breathing. Cushion the person's head if possible.
- If possible, place the person in the recovery position to protect the airway.

Fainting

Fainting occurs when blood flow to the brain is temporarily interrupted. People can faint for a variety of reasons, including dehydration, low blood sugar, reaction to bad news or a disturbing sight, or standing for too long. Signs and symptoms include sudden and usually brief loss of consciousness. Skin can be pale and sweaty.

- Check for breathing.
- Look for signs of injury from falling, if applicable.
- Treat as for shock by laying the person on his/her back with legs elevated.
- Call 911 if symptoms do not rapidly resolve.
- If symptoms do resolve, slowly move the person to a seated position and monitor for worsening symptoms, such as dizziness, headache, etc.
- Medical care should be sought if fainting happens repeatedly or with children and elderly persons, particularly if no cause is apparent.

Poisoning or Overdose

Poisoning or overdose can result from alcohol, prescription or illicit medication, carbon monoxide, and other inhalants. Signs and symptoms of poisoning are varied. Look around the area and observe for unusual odors or powders.

- Call Poison Control. In the United States, call 1-800-222-1222.
- Call 911.
- Make sure the area is safe.
- Check the person's airway to make sure it is open. Check for breathing. If breathing is absent, begin CPR.
- Attempt to determine the cause of the poisoning.
- Follow directions from the Poison Control Center.
- Treat for shock, if appropriate.
- Make sure any medication containers, jars, etc., go to the hospital with the person.

HEAT EMERGENCIES

Heat Exhaustion

Symptoms of heat exhaustion include faintness, weak or rapid pulse, cool and clammy skin, fatigue, and headache.

- Remove the person from the heat and have him/her lie down in a cool area in the shade.
- If the person is conscious and able to swallow, allow the person to take sips of cool water or a sports drink.
- Observe closely.
- If symptoms do not resolve rapidly, seek medical attention.

Heat Stroke

Heat stroke is a true medical emergency. Symptoms include extremely high body temperature (106°F [41°C] or higher); hot, red, or dry skin; rapid pulse; seizures; and loss of consciousness.

- Call 911.
- Quickly lower the person's body temperature by wrapping the person in cold, wet sheets or towels and use fans and air-conditioning to lower body temperature.
- Do not give the person anything by mouth.

COLD EMERGENCIES

Frostbite

Frostbite can happen in minutes and occurs when parts of the body are exposed to very cold temperatures. The skin will appear pale or almost white. Frostbite usually affects the ears, nose, feet, hands, or cheeks.

- Warm the affected area quickly by covering the area with blankets or immersing it in warm water. Do not use hot water.
- When the area becomes pink or returns to the person's normal skin tone, warming can be discontinued.
- The area will likely be painful and may be swollen.
- If fingers or toes are involved, separate with gauze pads.
- Seek medical attention.

Hypothermia

Hypothermia is a dangerously low body temperature (below 95°F [35°C]) caused by exposure to a cold temperature. It occurs when the body loses more heat than it can generate.

- Call 911.
- Move the person to a warm area immediately.
- Remove wet or frozen clothing.
- Rewarm the person by wrapping him/her in blankets.
- Dry the person thoroughly.
- If the person is not vomiting and is able to swallow, give warm liquids to drink.

TRAUMA INJURIES

Scrape

A scrape (a.k.a. an abrasion) is a superficial wound to the outermost layers of the skin. Minimal bleeding is usually involved.

- Apply direct pressure to stop any bleeding.
- Clean the wound gently with soap and water.
- Attempt to gently remove small foreign bodies from the wound (grit, glass, etc.).
- Gently blot dry.
- Apply antibiotic ointment.
- Cover with a dressing to prevent contamination.
- Secure the dressing with tape or roller gauze.

Puncture Wound

A puncture wound can vary in depth. It is caused by a sharp, pointed object that has punctured the surface of the skin. Minimal bleeding is usually involved, and the entrance of the wound may be small and seem to close on itself. The object that caused the wound is usually contaminated with dirt or other material, and there is a high likelihood of infection if the wound is not treated.

- Apply direct pressure to stop any bleeding.
- Clean the wound gently with soap and water.
- Cover with a dressing to prevent contamination.
- Secure the dressing with tape or roller gauze.
- For wounds that contain foreign bodies or if a tetanus vaccine is out of date or questionable, seek medical attention.

Cuts

Cuts (a.k.a. lacerations) are wounds that extend deeper into the skin. Cuts can have smooth or ragged edges depending on the object that caused the injury.

- Assess for arterial bleeding. Signs of arterial bleeding include bright red blood spurting from the wound.
- If arterial bleeding is present, have someone call 911 immediately.
- Apply direct pressure.
- If the wound is in an arm or leg, elevate the part above the level of the person's heart.
- Once bleeding is controlled, apply a sterile dressing to the wound and secure with a bandage.
- Have the person lie down, and cover the person with a blanket to keep warm.
- Do not give the person anything by mouth (e.g., medications, drinks). This is to protect the airway. Vomiting can cause aspiration and obstruction of the airway.
- Serious cuts and even smaller cuts, especially to the face, require medical attention.

Nosebleed

Nosebleeds can happen spontaneously due to environmental factors, such as temperature and humidity. They can also be caused by trauma.

- Have the person sit down with his/her head tilted slightly forward. This prevents blood from going down the throat into the stomach.
- Apply pressure to the soft part of the nose for at least 5–10 minutes.
- Applying an ice pack to the nose can be helpful as well.
- Call 911 if the bleeding is extensive or if it cannot be controlled with pressure.

Amputation

An amputation is the accidental removal of a body part. Examples of amputated parts include fingers, toes, or even an arm or leg.

- Call 911.
- Control bleeding with direct pressure and elevation above the level of the heart.
- Have the person lie down, and cover the person with a blanket to keep warm.
- Watch closely for signs and symptoms of shock, and treat appropriately.
- Recover the amputated part if it is safe and possible to do so. Cover with dry, sterile gauze. A clean, dry cloth is an option if gauze is not available. Seal the part in a watertight container or a plastic bag. Keep the part cool by placing the container or bag in a cool water bath. Never place the amputated part directly on ice.

Impaled Object

An impaled object is a foreign object protruding from the body. It could be a knife, stick, or piece of metal. An impaled object can be in any part of the body, including the eyes or ears.

- Call 911.
- Do not attempt to remove the object.
- Immobilize the object with a bulky dressing secured with tape or cloth.
- If the object is in the eye, cover both eyes to prevent excessive eye movement.
- If the object is in the ear, do not try to remove the object without medical help.
- Watch the person closely for signs of shock, and treat appropriately (keep warm and calm).

Burns

- **Thermal burns** are caused by heat.
  - Stop the burning process by using cool running water or a cool, wet cloth. Do not use ice, which can freeze the tissue and cause further damage.
- **Chemical burns** are caused by chemicals in powder or liquid form.
  - It is important to remove the chemical from the skin as soon as possible. If the chemical is in a powder form, brush off as much as possible.
  - For both types of chemicals (powder and liquid), flush with large amounts of water. Poison Control (1-800-222-1222) should be contacted for advice.
- **Electrical burns** are caused by electricity. This type of burn can cause little damage on the outside of the body but significant damage to internal organs.
  - Professional medical care should always be sought for electrical burns.
  - Personal safety is of the utmost importance. Do not attempt to rescue a person if the electricity is still on and the person is still in contact with it.

General Burn Treatment

- Once the burning process has stopped, blot burned areas gently and do not break blisters. Cover with a dry, sterile non-stick pad.
- Seek medical treatment for second- and third-degree burns and large first-degree burns.
- If the eyes are involved, be sure to flush the eyes with water for at least 10 minutes and allow the water to flush under both eyelids. If only one eye is involved, make sure the contaminated water does not enter the uninjured eye. Cover both eyes with sterile dressing, and seek medical attention.

Fracture, Sprain, Strain, or Dislocation

Signs of a fracture, sprain, strain, or dislocation can include tenderness, swelling, pain, and bruising.

- Manually stabilize the bone or joint above and below the affected area (e.g., if the elbow is injured, the upper and lower arm should be stabilized). Gently hold the area to prevent it from moving.
- Apply a splint to immobilize the injured area, as well as the area above and below it. Splints can be fashioned from broom handles, magazines, pieces of wood, etc. Be sure to pad the injured area.
- Check the area below the splint to make sure circulation, movement, and sensation are present.
  - **Circulation** can be assessed by squeezing the fingernail or toenail to make sure blood returns after it blanches (i.e., turns white).
  - **Movement** can be assessed by having the person gently wiggle his/her fingers or toes.
  - **Sensation** can be assessed by making sure the person can feel gentle touch.
- Watch for complaints of numbness or tingling. This can be a sign that the splint is too tight and needs to be loosened.
- Ice or a cold compress may be applied to the affected area to help reduce swelling.

RICE Therapy for Sprains & Strains

- **Rest:** Stop the activity.
- **Ice:** For the first 24–48 hours, apply ice to the injured area for 10–15 minutes every 2–3 hours. Do not place ice directly on the skin; keep a damp cloth between the skin and the ice or ice pack.
- **Compression:** Wrap an elastic bandage around the injured area. Wear it only while awake, and loosen or remove it every 2 hours.
- **Elevation:** If possible, keep the injured area elevated above the level of the heart to reduce blood flow and swelling.

Bandages, Dressings, Splints & Slings

- **Bandages** are strips of material or rolls of gauze that are used to wrap or bind a body part or secure a dressing.
- **Dressings** are therapeutic or protective materials that are applied to a wound. They are often sterile (which means they have been treated to prevent the growth of bacteria and other microorganisms) and individually packaged in an airtight container.
- **Splints** are rigid materials used to prevent motion of a body part. A splint should be light, straight, rigid, and long enough to extend beyond the joint above the injury and below the fracture site.
  - A board used as a splint should be at least as wide as the injured part. Tightly rolled newspapers or magazines can be used to splint the arm or lower leg. Popsicle sticks may be used as splints for broken fingers.
  - Splints should be padded, at least on one side, to permit the injured area to swell and reduce interference with circulation.
  - Splints should never be too tight. Bandages or strips of cloth or adhesive tape are used to hold splints in place. If the limb becomes cold, pale, or blue or if the affected part becomes too painful, the splint should be loosened.
- **Slings** are devices used to support an injured part of the body, especially a forearm. Slings can allow immobilization of the shoulder, elbow, or both. Further immobilization can be achieved by applying a swathe, which is an additional wide strip of material around the chest wall above the forearm.

RESCUING & MOVING VICTIMS

Motor Vehicle Crash

When approaching a motor vehicle crash, you can easily become another victim, especially when visibility is limited because of weather or time of day.

- Park in a safe area. Parking in front of the crash is suggested to leave room for emergency response vehicles.
- Turn on your hazard lights.
- Call 911. Advise the operator of your location, and be as specific as possible. Use road signs and mile markers for reference if possible.
- Make sure the scene is safe. Look for hazards such as downed power lines, leaking fluids, etc.
- Introduce yourself to the person, and ask for permission to help. Try to keep the person calm.
- Ask the driver to turn off the ignition, or do it yourself if possible.
- Do not hurry to remove the person from a vehicle unless there are immediate threats (fire, water, etc.). It is best for the person to remain in place. This helps prevent further injury.
- If spinal injury is suspected, use your hands to stabilize the person's head and neck. It is important to keep the spine straight and still.
- Communicate information to emergency responders when they arrive such as how many vehicles are involved, the number of victims, and the presence of life-threatening injuries.

Water Rescue

A drowning person will often look like he/she is bobbing in the water or playing games. It takes just a few seconds for a person to get in trouble in the water.

- Call 911 as soon as you become concerned.
- Follow the sequence of **reach**, **throw**, **row**, and **go**.
  - **Reach:** If the person is within reach and you are in a secure position (so that you do not become a victim yourself), extend your arm or a sturdy object, such as a pole, to the person.
  - **Throw:** If the person is farther away, throw a life jacket, throw line, or life ring to the person. Encourage the person to grab onto the item.
  - **Row:** If a boat or watercraft is available, row to the person. Be sure to wear a personal flotation device and have one onboard to give to the person.
  - **Go:** Swimming out to the person should be a last resort. You should only do so if you have been trained in water rescue.
- Once the person is rescued, evaluate the person. If the person is conscious, keep the person warm and assist emergency medical personnel in caring for the person. If the person is unconscious but breathing, place the person in the recovery position and observe closely. If the person is not breathing, begin CPR.

Drowning

Drowning is defined as suffocation by immersion in liquid such as water. Drowning can occur in both shallow and deep water.

- Carry out water rescue as described previously. If there is a possibility that this is a diving accident, assume that there is a possible spinal cord injury and maintain stabilization of the spine.
- Remove the person from the water using a hard surface, such as a backboard.
- Check breathing and treat accordingly. If necessary, begin CPR.

Ice Rescue

- Call 911.
- Do **not** go out onto the ice. The ice will not be strong enough to support you.
- Follow a procedure similar to a water rescue:
  - **Reach** the person with an object, such as a ski pole.
  - **Throw** something to the person that you can use to pull the person back onto the ice or shore. A garden hose or rope may work. Have the person tie this object around his/her waist. When hypothermia begins to set in, coordination is affected. The person may not be able to hold onto the rope.
  - **Row** (slide) in a boat across the ice to the person. If the ice breaks, you will be able to float rather than fall in the water.
  - **Go** out on the ice only as a very last resort. If this is necessary, take a pole or ladder with you so that you can limit the distance that you must go to reach the person. This will also distribute your weight on the ice, making it less likely to break.
- Once the person is rescued, evaluate the person. If the person is conscious, remove wet clothing and keep the person warm. Handle the person very gently. If the person is unconscious but breathing, place the person in the recovery position and observe closely. If the person is not breathing, begin CPR.

Fire Rescue

- Use **RACE:**
  - **Rescue** anyone from immediate danger if you can do so without putting yourself in danger. Stay low to the floor, since heat and smoke rise.
  - **Alarm** by calling 911. Give the address and the specific location of the fire.
  - **Confine or contain** the fire by closing all doors and windows.
  - **Extinguish** the fire if it is small and your escape route is clear. Use the **PASS** method:
    - **Pull** the pin on the extinguisher.
    - **Aim** the nozzle at the base of the fire.
    - **Squeeze** the handles of the extinguisher.
    - **Sweep** from side to side. Evacuate the area if not able to extinguish.
- Once the person is removed from the fire, place the person in a comfortable position. This may be a seated position if the person is conscious. If the person is unconscious, he/she should be placed in the recovery position. Be sure that the person's airway is open. If the person is not breathing, begin CPR.

Unusual Odors

In their natural states, natural gas and propane are colorless and odorless. Suppliers add chemicals that give off foul smells to aid in detection. Often, this smell is reminiscent of rotten eggs. An odor inside your home or workplace may indicate a leak.

- If you smell rotten eggs, leave the area immediately. Do not use a telephone, including a cell phone or any other electronic device that contains a battery. These can cause sparks and could be a source of ignition.
- Do not operate any electrical switches, including light switches. This could create a spark.
- Evacuate everyone immediately.
- Call for help from outside and far away from the building.
- Wait for emergency responders. If possible, direct them to the location of the gas meter.

Confined Spaces

Confined spaces are areas that are not safe for human occupancy. They can be below ground (e.g., manholes, wells, and vaults) or aboveground (e.g., storage tanks and silos).

- If an emergency is identified, call 911 immediately and be specific about the type of emergency so that specialized personnel and equipment can be dispatched.
- Yell to victims, but do not enter the area yourself.
- Encourage victims to crawl to safety if possible.
- Do not attempt to provide care until victims are removed from the confined space.

Hazardous Materials

- Highway crashes and industrial accidents all carry the potential for exposure to hazardous materials. Have a high index of suspicion during these situations.
- Look for clues such as hazardous materials placards on vehicles, spilled liquids or solids, strong odors, or vapor clouds.
- Stay upwind (and uphill if possible) of the accident area.
- Share your observations with emergency responders. Only specially trained rescuers with proper equipment should be near the area.

Multiple Victims

There are many examples of incidents where there may be multiple victims involved.

- First, stay calm.
- Call 911 and give as much specific information as possible in order for appropriate resources to be dispatched. Give a location, an approximate number of victims, and any special information that may be helpful (bus crash, tanker involved, etc.).
- Use **triage** (a French word meaning "sorting") to sort victims into groups according to injury severity.
  - Ask all victims who can hear you and can walk to move to a designated area. These **walking wounded** are unlikely to have life-threatening injuries.
  - Next, check motionless victims. If a victim is obviously dead or unlikely to survive, they can be classified as **dead**.
  - Victims requiring **immediate care** are those who are suffering from breathing difficulties, severe bleeding, severe burns, and signs of shock. They require treatment and transport to a medical facility as soon as possible.
  - Victims without life-threatening injuries may be classified as **delayed care**. These injuries may include bone or joint injuries, minor burns or abrasions, no major bleeding, etc.
- As you are in the triage process, you should not spend more than 30 seconds with each victim. Bystanders can be enlisted to provide care and comfort.
- Be prepared to give a report to emergency responders. Taking notes as you triage is helpful.

INJURY PREVENTION

- Wear a seat belt while driving.
- Secure infants and children in appropriately sized car seats.
- Do not drink or use drugs prior to or while driving.
- Wear appropriate protective gear while playing sports.
- Wear a helmet when riding a bicycle or motorcycle.
- Wear a personal flotation device when on a boat or a personal watercraft and when participating in water sports. Children should wear personal flotation devices when they are near the water.
- Keep medications in a secure, moisture-free place away from children's reach.
- Make sure your home has working smoke and carbon monoxide detectors. Change batteries once a year.
- Each level of your home should have a fire extinguisher.
- Have a home escape plan and central meeting place, and make sure all members of your household are familiar with and aware of both.

FIRST-AID KIT SUPPLY CHECKLIST

Medications

✓ Acetaminophen (liquid and pill forms) for pain relief and fever reduction
✓ Aloe vera gel for treating sunburns
✓ Antacids for treating acid indigestion
✓ Antibiotic ointment for use on superficial wounds to prevent infection
✓ Antidiarrheal medication
✓ Aspirin (never give to children under the age of 18 or pregnant women)
✓ Calamine lotion for itchy rashes and insect bites
✓ Diphenhydramine (liquid and pill forms) to decrease itching
✓ Hydrocortisone cream for itchy rashes and insect bites
✓ Ibuprofen (liquid and pill forms) for pain relief and fever and inflammation reduction
✓ Prescription medications

Supplies

✓ Antiseptic towelettes to clean wounds when soap and water are not available
✓ Bandage strips in assorted sizes to cover superficial wounds
✓ Bulb syringe for cleaning and irrigating wounds
✓ Burn dressings (sterile) to keep a burned area clean and dry
✓ Cold packs for sprains and strains; can also be used in heat emergencies and for nosebleeds
✓ Cotton swabs for applying creams and for removing foreign objects
✓ Disposable gloves
✓ Elastic bandages to provide compression and support for sprains and strains
✓ Gauze pads for dressing wounds
✓ Hand sanitizer
✓ Insect repellent
✓ Medication cup or spoon to measure appropriate doses of medication
✓ Medication syringe for medication measurement and administration, as well as wound irrigation
✓ Petroleum jelly
✓ Rolled gauze (various sizes) to secure dressing to wound
✓ Sunscreen
✓ Triangular bandage, which can be used to secure dressings, apply pressure to wounds, or make a sling

Equipment

✓ Duct tape for securing homemade splints, as well as many other uses
✓ Emergency blanket to keep an injured person warm; essential for preventing and treating shock; can also be used for shelter
✓ Flashlight (small and waterproof) with extra batteries
✓ Plastic bag for disposal of contaminated materials
✓ Safety pins, which can have many uses (e.g., to secure slings)
✓ Scissors
✓ Thermometer
✓ Tweezers
✓ Waterproof bags

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